


Salton Sea Ecosystem Restoration: Monitoring and Assessment Plan (MAP)



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Salton Sea Air Quality Technical Working Group
Ontario, CA

Monitoring and Assessment Plan (MAP)

A thick, horizontal yellow brushstroke with a textured, painterly appearance, spanning most of the width of the slide.

“Monitoring of the ecosystem is critical to the success of restoration”.

USGS Salton Sea Science Office

Overarching Goal of the Monitoring and Assessment Plan (MAP)

- ◆ **Implement a data collection, analysis, management, and reporting system to inform and guide management actions for the restoration of the Salton Sea ecosystem.**

Objectives of the Monitoring and Assessment Plan (MAP)

- ◆ **Conduct a retrospective analysis of data to determine its relevance and/or applicability for inclusion in the MAP.**
- ◆ **Incorporate relevant existing data in the MAP.**
- ◆ **Measure and assess changes to the Salton Sea ecosystem from baseline or other reference conditions.**
- ◆ **Provide information to refine hypotheses of ecosystem functions.**
- ◆ **Provide information to assess performance of project implementation and management actions.**
- ◆ **Store, manage, and make monitoring data publicly available in a timely manner.**

Ecosystem Components to be Monitored in Support of Ecosystem Restoration

- ◆ **Geographic/Geologic**
- ◆ **Hydrologic – surface water, ground water, water quality, and contaminants**
- ◆ **Biologic – plankton, benthos/aquatic invertebrates, fish, birds**
- ◆ **Air quality**
- ◆ **Episodic and unpredictable events**
- ◆ **Socioeconomic**

Air Quality Sections of the MAP

- ◆ **Problem Statement**
- ◆ **Goal**
- ◆ **Objectives**
- ◆ **Constraints/Assumptions**
- ◆ **Key Questions**
- ◆ **Approach**
- ◆ **Conceptual Model**

Air Quality Sections of the MAP

Problem Statement:

- ◆ **Currently, the baseline information on air quality at the Salton Sea is not sufficient to provide an accurate assessment of the current conditions, nor is it sufficient to estimate the potential air quality and human health effects that would be associated with the shrinking Salton Sea, the associated increase in exposed playa, or the construction and implementation of air quality mitigation, species conservation, or ecosystem restoration projects.**
- ◆ **Information is needed to characterize current conditions and to predict potential future conditions.**
- ◆ **Information is also needed to identify and better understand the relationships among emission sources, pollutants, meteorological parameters, and other causes of variability in air quality.**

Air Quality Sections of the MAP

Goal:

- ◆ **The goal is to implement data collection, analysis, management, and reporting systems to inform and guide management actions for air quality at the Salton Sea.**

Air Quality Sections of the MAP

Objectives:

- ◆ **Determine the conditions, variability, and trends of air quality at the Salton Sea;**
- ◆ **Establish benchmarks against which data gathered during long-term monitoring can be compared;**
- ◆ **Develop and assess hypothesized relationships among emission sources, pollutants, meteorological parameters, and other causes of variability in air quality;**
- ◆ **Identify and prioritize existing data gaps, and collect data using standardized data collection methods and techniques to fill these voids in a manner that facilitates storage, management, and distribution in a timely manner; and**
- ◆ **Integrate planning, data collection, analysis, and management activities with the other resource groups.**

Air Quality Sections of the MAP

Constraints/Assumptions:

- ◆ **Information collected as part of the MAP will be used to inform and guide future management actions that could be implemented with or without an ecosystem restoration program.**
- ◆ **Air quality in the Salton Sea Air Basin does not currently achieve California or National Ambient Air Quality Standards (CAAQS or NAAQS) for PM10 and ozone. Mitigation of the air quality impacts associated with the Imperial Irrigation District Water Conservation and Transfer Project (IID Water Transfer) and/or the Salton Sea ecosystem restoration program would not resolve all the air quality problems in the area.**

Air Quality Sections of the MAP

Constraints/Assumptions, continued:

- ◆ **The four-step air quality mitigation and monitoring plan (the 4-step plan) outlined in the 2003 Imperial Irrigation District Water Conservation and Transfer Project Mitigation, Monitoring, and Reporting Program (MMRP) would be implemented by the Joint Powers Authority (JPA) if no ecosystem restoration program (or projects) are undertaken. The 4-step plan should be considered for any restoration projects that are undertaken.**
- ◆ **As required under local air district regulations and requirements, landowners would implement dust control for any exposed areas outside of the IID Water Transfer study area that become emissive. Dust control measures implemented by landowners would not likely be 100 percent effective in reducing fugitive dust emissions from these exposed areas, resulting in additional emissions not covered by the 4-step plan or the restoration program.**

Air Quality Sections of the MAP

Constraints/Assumptions, continued:

- ◆ **Existing law required the Secretary of the Resources Agency, in consultation with the Department of Fish and Game, the Department of Water Resources, Salton Sea Authority, appropriate air quality districts, and the Salton Sea Advisory Committee, to undertake a restoration study to determine a preferred alternative for the restoration of the Salton Sea ecosystem. The Secretary of the Resources Agency presented the results of the restoration study, and the preferred alternative, to the California Legislature in 2007. The legislature has not taken further action at this time to approve or fund the preferred alternative.**
- ◆ **It may not be feasible to fully eliminate air quality impacts from the restoration projects. As part of project-level environmental studies, statements of overriding considerations may be required for air quality impacts that may remain significant after mitigation.**

Air Quality Sections of the MAP

Constraints/Assumptions, continued:

- ◆ **Future management actions should be developed in consultation with the air quality districts, the California Air Resources Board, and other applicable regulatory agencies.**
- ◆ **Future management actions will need to comply with applicable air quality laws, plans, and regulations.**
- ◆ **If federal funding or approvals are required, restoration projects will need to demonstrate conformity with the applicable local/regional air quality management plans and the California State Implementation Plan (SIP).**

Air Quality Sections of the MAP

Constraints/Assumptions, continued:

- ◆ **Any additional Constraints/Assumptions from the Salton Sea Air Quality Technical Working Group (SSAQTWG)?**

Air Quality Sections of the MAP

Key Questions:

- ◆ **What is the condition and trend of air quality at the Salton Sea?**
- ◆ **What is the quality and adequacy of the data from existing air quality and meteorological monitoring locations in the Salton Sea Air Basin?**
- ◆ **When incomplete data are found at existing stations, can the problems be remedied?**

Air Quality Sections of the MAP

Key Questions, continued:

- ◆ **What additional data will be needed for future project level impact evaluations?**
- ◆ **Are the existing monitoring stations located at sites appropriate to provide the data needed to evaluate future impacts?**
- ◆ **What is the best way to enhance the existing monitoring stations to refine and expand the baseline data for PM10, PM2.5, NOx, SOx, CO, ozone, and H2S concentrations?**

Air Quality Sections of the MAP

Key Questions, continued:

- ◆ **Are there other pollutants that should also be considered? How can data on these pollutants be collected using the existing and/or expanded air quality monitoring network?**
- ◆ **What is the chemical composition of the particulate matter in ambient air sampled along the shoreline?**
- ◆ **Are new monitoring stations needed to expand the existing monitoring network to measure baseline and future levels of the pollutants of concern?**

Air Quality Sections of the MAP

Key Questions, continued:

- ◆ **What meteorological stations and equipment are needed to monitor the potential changes and support project level impact evaluations of the microclimatic conditions adjacent to the Salton Sea?**
- ◆ **How can the threshold wind velocities and associated particulate matter emissions be characterized on a sub-hour basis for existing, future, and/or disturbed playa?**
- ◆ **What correlations can be developed for data on meteorological conditions, such as wind speed, when measurements are taken concurrently at the same location at different heights above the ground? Can the 2 meter CIMIS data be used in future studies?**

Air Quality Sections of the MAP

Key Questions, continued:

- ◆ **Any additional Key Questions from the Salton Sea Air Quality Technical Working Group (SSAQTWG)?**

Air Quality Sections of the MAP

Approach:

⌘ **Compilation of historic and ongoing data collection efforts**

- ❖ Identify applicable and existing air quality data

⌘ **Retrospective analysis**

- ❖ Compatibility with objectives
- ❖ Usability (data quality)

⌘ **Identify data gaps**

- ❖ Identify data adequacy problems that need remedy
- ❖ Define needs, if any, for data from an expanded network

Air Quality Sections of the MAP

Approach, continued:

- ⌘ **Correct data adequacy problems and expand air quality and meteorological monitoring network, as needed**
- ⌘ **Identify and define other focused studies needed to provide data to support future project level studies**
- ⌘ **Data collection**
 - ❖ Monitoring objectives
 - ❖ Scope
 - Extent, timing, parameters
 - Protocols and standards
 - ❖ Linkage to other resource areas
 - ❖ QA/QC
 - ❖ Peer review
- ⌘ **Data management**

Air Quality Sections of the MAP Conceptual Model:

Next Steps

- ◆ **Development of an air quality monitoring program plan**
- ◆ **Identify roles and responsibilities**
- ◆ **Facilitate and integrate input from local, Tribal, state, and federal agencies and other stakeholders (Technical Working Group)**
- ◆ **Meetings and decision making**
- ◆ **Agreements and contracts to implement monitoring program**
- ◆ **Pilot and demonstration scale projects**
- ◆ **What else???**